DOCUMENT RESUME

ED 380 989 FL 022 687

AUTHOR Kukkonen, Pirkko
TITLE Different Ways of Conveying Information: A Comparison of Spoken and Written Stories Produced by Non-Aphasic and Aphasic Subjects.
PUB DATE 95
NOTE 15p.
AVAILABLE FROM English Philology, University of Turku, Henrikinkatu 2, SF-20500 Turku, Finland.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Aphasia; College Students; *Communication (Thought Transfer); Comparative Analysis; Finnish; Foreign Countries; Higher Education; Language Research; *Oral Language; *Story Telling; Tape Recordings; Uncommonly Taught Languages; *Written Language
IDENTIFIERS Finland

ABSTRACT

Spoken and written stories of healthy, monolingual speakers of Finnish were compared with spoken stories of aphasic subjects in order to determine in which respects narratives differed from one another. The comparison sheds light on the factors behind stylistic variation in speech and writing. Sixty stories were elicited by presenting a series of six pictures to subjects in three age groups. The same picture series was presented to five non-aphasic subjects and 15 aphasics all of whom were accepted on a first come first serve basis. Furthermore, 42 written stories were elicited by the same picture series from university students. the subjects were asked to tell or to write down the story illustrated in the picture. The pictures remained in full view throughout the task. The spoken stories were tape-recorded and then transcribed. Results did not reveal qualitative differences between the aphasic and non-aphasic subjects. The aphasic's stories were characterized by an overabundance of features typical of spoken stories. (JL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 380 989

Different Ways of Conveying Information: A Comparison of Spoken and Written Stories Produced by Non-Aphasic and Aphasic Subjects

Pirkko Kukkonen

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Pirkko Kukkonen

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

FL022987

Submitted for publication: Anglicana Turkuensia, organ
edited by Brita Wårvik, Sanna-Kaisa Tanskanen, Risto Hi

DIFFERENT WAYS OF CONVEYING INFORMATION: A COMPARISON OF SPOKEN AND WRITTEN STORIES PRODUCED BY NON-APHASIC AND APHASIC SUBJECTS

Pirkko Kukkonen

Aphasic patients with speech production difficulties are considered to suffer from problems in formulating their language output when their communicative intentions are intact. Kukkonen (1993, 1994) discovered an overuse of features typical of spoken genres in aphasic speech. Aphasia is, by definition, an acquired language disturbance due to brain damage. It manifests itself in speech production, comprehension, reading or writing. In order to determine which variables should be controlled in the analysis of aphasic speech, it is important to analyze stories produced by non-aphasic subjects. Spoken and written stories of healthy, monolingual speakers of Finnish were compared with spoken stories of aphasic subjects in order to determine in which respects the narratives differed from one another. The comparison also sheds light on the factors behind stylistic variation in speech and writing.

Data

The data consist of 65 spoken stories and 42 written stories produced by healthy non-aphasic subjects, as well as 15 spoken stories told by aphasic subjects. All the subjects were native speakers of Finnish. Sixty stories were elicited by presenting a series of six pictures (Paradis 1987:117) to subjects in three age-groups, 50-59 years, 60-69 years, and 70 years or older (for more information, Paradis 1987, Roitto 1990)[1]. The same picture series was presented to 5 non-aphasic subjects and 15 aphasics all of whom were accepted on a first come first serve basis (Kukkonen 1990). Furthermore, forty-two written stories were elicited by the same picture series

[1] I would like to thank Marjo Roitto for allowing me to use the data she has collected from 60 non-aphasic subjects.

BEST CO

from university students. The subjects were asked to tell or to write down the story illustrated in the pictures. The pictures remained in full view throughout the task. The spoken stories were tape-recorded and then transcribed.

Cognitive components of the picture description task

The picture description task can be divided into three major components. First, the subject has to look through the picture series and form an idea about its content. There are several factors at this stage which can be reflected in the story. The subject can, for example, start looking at the pictures without his or her eyeglasses, and consequently not see the tiny details of the pictures, or the subject may not look carefully through the whole picture series before starting to tell the story, instead he or she may look at one picture at a time while proceeding to tell the story.

Each speaker also has to make some fundamental decisions concerning the verbalization of the story. He or she has to select the style (colloquial vs. formal, descriptive vs. dynamic, Saukkonen 1984) and to decide how much attention to pay to the description of events in relation to the interpretations of the lesson taught by the picture.

There are some differences between the spoken and written tasks which may be dependent on the stylistic choices. In principle, a written story could be more easily read by people who have not seen the picture series, as compared to a spoken story (even if the story is tape-recorded). The task also resembles written composition at school, where students are sometimes asked to write for unknown purposes and to an unknown audience. Thus, the subjects may be more used to writing than to telling oral stories without a definite communicative purpose. Furthermore, writing tends to involve a lot of planning which may encourage the subject to look through the picture series carefully before starting to write, whereas the oral production of a story does not require such planning.

PY AVAILABLE

Finally, the selected content has to be verbalized. By definition, the aphasic subjects differ from non-aphasic subjects in that they have special problems with verbalization. There may be different types of planning, some of them closely related to actual verbalization (e.g. word finding). Time constraints dictated by turn-taking in oral communication place heavy demands on the speaker and may give rise to many peculiar features in spoken language. The analysis of aphasic speech may shed light on the relation between verbalization and other kinds of planning.

A quantitative analysis of the data

The stories were first scored according to the principles typical of clinical aphasia tests. The variables were selected from the scoring proposed by Paradis (1987). The analysis was restricted to the variables characterizing correct syntactic structures. The frequencies of different error types were excluded from the analysis, even though they are important when determining the types of aphasia. The scoring is linguistically somewhat more sophisticated than the scorings of average aphasia tests. The selected variables were: 1. number of utterances, 2. total number of words, 3. mean length of utterance, 4. mean length of the five longest utterances, 5. number of different words, 6. type/token ratio, 7. number of verbs per utterance, and 8. number of subordinate clauses. With these variables it is possible to distinguish aphasic patients, those who are typically fluent from those who are non-fluent. Fluent speech is effortlessly produced and well articulated with normal melody and rhythm, and with long grammatically correct phrases. Non-fluent speech is uttered slowly and hesitantly with great effort and poor articulation, and with short grammatically incorrect phrases.

The stories were then subjected to a more detailed syntactic analysis based on the variables selected by Hakulinen, Karlsson and Vilkuna (1980) for the description of standard Finnish. For the purpose of this study, the analysis was greatly simplified. The analysis focused on the variation in the sentence types used by the subjects, and on the simplicity vs. the complexity of

the noun phrases (both subjects, objects, and adverbials) and of the finite verb.

The comparison of the spoken stories produced by non-aphasic subjects belonging to the different age groups revealed few differences between the two younger age-groups, but the eldest age-group differred from the younger ones. Elderly people, 70 yrs or more, presented information in less dense form as compared to the younger subjects, and also the syntactic constructions were rendered less complex; there were fewer subordinate clauses, few predicates consisting of a compound tense or a chain of verbs. The tendency was to use more single-word predicates.

There were both long and short narratives in the comparison data. The short narratives were typically dynamic and objective; they simply stated the chain of events taking place. In the longer narratives there were more descriptive and subjective elements added to the dynamic core of the narrative. The fluent aphasics' long narratives were descriptive as compared to the non-fluent aphasics' more dynamic stories. All the narratives were concrete, but some of them contained explicit interpretations of the lesson taught by the picture.

Among the stories told by aphasic subjects a few were abnormally long with a great number of utterances and words, but also a few were exceptionally short. The total number of words in the long stories was over 200, whereas in the short narrative there were under 30 words. While the mean length of the five longest utterances in the long stories was over 20 words, it was less than 5 in the shorter narratives. These two types of stories are referred to as fluent and non-fluent. The following examples illustrate the different ways in which non-fluent (agrammatic) and fluent (paragrammatic) aphasics convey information. In this example, one picture of the picture series was selected. In the picture, a man who has fallen out of a tree, is lying on a stretcher and is being taken to the ambulance by the paramedics, while some people are standing by the ambulance and watching. A typical non-fluent aphasic produced only one word for this picture and there were some phonological errors in the word:

(1) ampuvantti* *"ambulanssi" 'ambulance'

A typical fluent aphasic, however, produced a longer description with some phonological errors and a non-specific choice of words[2]:

(2) ja sielta on tullut känne puolelle tämä, tämä tämä,
and there+ABLAT come+PERF this+ILLAT side+ALLAT this, this this,

ampu ampu, ampuka ranssi ampuranssi,
ambu ambu ambula lance ambulance

josta, kaksi miestä kantaa sitä sinne sisälle taas
which+ELAT two man+PART carry+SG3 it+PART there+ILLAT inside+ALLAT again

'and from there has come to this side this, this this, ambu ambu ambula lance ambulance (with phonological errors), from which, two men are carrying him in there again'

Only two stories out of fifteen were agrammatic. Agrammatism, also called telegraphic style, with very simple syntax and utterances, often restricted to mere key words, may be at least partly due to the subjects' severe articulation problems (Kolk & al. 1985). There were also two paragrammatic stories (Kukkonen 1993). There were characteristic morphological and syntactic errors in the paragrammatic speech that were foreign to the non-aphasic speech.

Most of the aphasic subjects' stories did not differ clearly from the comparison stories, although a detailed qualitative analysis indicated minor deviations from the normal. A more detailed comparison of the aphasic and non-aphasic stories should take into consideration the stylistic differences, and only stylistically equivalent stories should be compared. The narratives produced by fluent aphasics resembled, to some extent, the narratives of the eldest age-group of non-aphasic subjects and of other non-aphasic subjects who produced long, descriptive narratives. The narratives of the fluent aphasics showed features typical of colloquial, spoken genres as compared to more formal or written genres (e.g. lexical density was low, subordinate

[2] The following abbreviations are used in the glosses: SG3 - third person singular, PERF - perfect tense, PART - partitive, ELAT - elative, ILLAT - illative, ABLAT - ablative, ALLAT - allative

BEST COPY AV

clauses were abundant, and the number of verbs per utterance was high, see Kukkonen 1994).

An analysis of (finite) verbs used in the stories

Levelt (1989) has proposed that speech production is lexically driven. Also in the clinical aphasiological tradition, it is usually assumed that naming difficulties account for a great deal of anomalous characteristics of spontaneous or descriptive speech. Moreover, Kukkonen (1994) found fewer transitive clauses in aphasic speech than in non-aphasic speech in a quantitative analysis. This might be accounted for by word-finding difficulties affecting either the retrieval of nouns in object positions, or the selection of finite verbs. Additionally, the overuse of existential clauses might be a way of overcoming word-finding difficulties as the Finnish existential clauses often begin with an adverbial, such as *siellä* 'there', and the content words come only at the end of the clause.

According to the lexical hypothesis, verbs play a central role in speech production as the lexical entries of verbs entail much information about the structure of clauses. Thus, one might suggest that the rarity of transitive verbs in aphasic speech would be due to the difficulties in activating the syntactic information included in the lexical entry. In this case, aphasic patients would use the same verbs as non-aphasic subjects but with fewer qualifiers. However, there were remarkable differences between the verbs used in the different sets of stories. The selected verbs were correctly used with the required qualifiers (at least by those aphasics without grammatical problems, agrammatism or paragrammatism).

Before analyzing aphasic speech, the verbs used in the spoken and written stories of non-aphasic subjects were compared. For the purpose of this comparison all the finite verbs occuring in the stories were selected and their frequencies were calculated. In order to compare different ways of conveying information in spoken and written genres, verbs with a frequency at least five units higher in spoken (as compared to written) or written (as compared to spoken) stories

AILABLE

were selected for further analysis (except for the verb *olla* 'to be' which was not analyzed. Its occurrence was extremely frequent but it had different usages, for example, as an auxiliary in forming compound tense). The following verbs were typical of spoken and written narratives:

Verbs common in spoken stories:
olla 'to be', *mennä* 'to go', *tulla* 'to come', *pudota* 'to fall', *viedä* 'to take', *tuoda* 'to bring', *kiivetä* 'to climb', *itkeä* 'to cry', *katsoa* (+ *katsella*) 'to look at', *katketa* 'to break', *kiivetä* 'to climb', *näyttää* 'to show, to point to', *hakea* 'to fetch', *kuolla* 'to die', *pudota* 'to fall'

Verbs common in written stories:
huomata 'to notice', *haluta* 'to want', *auttaa* 'to help', *murtua* 'to break', *pesiä* 'to nest', *hälyttää* 'to call (an ambulance)', *säikähtää* 'to get a fright', *kiidättää* 'to speed', *lohduttaa* 'to console', *saada* 'to get', *kuulua* 'to be heard', *nähdä* 'to see', *joutua* 'to have to', *päästä* 'to get (into, out of)', *haluta* 'to want', *innostua* 'to get enthusiastic', *tavoittaa* 'to catch', *menettää* 'to lose', *juosta* 'to run', *päättyä* 'to end', *kutsua* 'to call', *saapua* 'to arrive', *päättää* 'to decide'

In the spoken stories, there were high frequency verbs used by many speakers. However, in the written stories there were no verbs occurring with equal frequency, and there was more variation between the subjects in the selection of verbs and in the ways of conveying the information in the picture series.

On the average, the verbs typical of spoken narratives were somewhat more common than the verbs typical of written narratives (according to the Frequency Dictionary of Finnish, Saukkonen & al. 1979). However, there were relatively rare verbs among those typical of spoken narratives (for example, *itkeä* 'to weep') and extremely common verbs among those typical of written narratives (for example, *saada* 'to get'). Thus, frequency was not the primary explanation for the differences in the choice of verbs in spoken and written narratives.

The analysis of the verbs typical of spoken vs. written narratives did not reveal a statistically significant difference, such that transitive verbs would be more common in written narratives and intransitive verbs in spoken narratives. There was, however, a slight tendency for transitive verbs to occur more often in the written stories. In the written stories, the verbs seem to take more qualifiers indicating manner, place, time, etc. than in the spoken stories. Furthermore, infinitival constructions often occur as qualifiers in writing.

The differences in the choice of verbs lead to different ways of conveying information. Sometimes there were only slight stylistic differences among the verbs in the written and spoken stories, such as *tulla* 'to come' and *saapua* 'to arrive', but often there were strong differences in how the information was verbalized and also in the kind of information conveyed.

A qualitative analysis of some event sequences

Three of the six pictures (pictures 2, 3, and 4) were analyzed in more detail in order to find out why different verbs were used in the spoken and written stories, and in order to further characterize the usage of these verbs in the spoken and written narratives and in the aphasic subjects' narratives. The chain of events depicted in the three pictures was divided into five components: 1. the cause for climbing in the tree, 2. the climbing process itself, 3. the cause for falling from the tree, 4. the falling itself, and 5. the consequence of falling.

Concerning components 1 and 2 [the climbing in the tree and its cause]: while 80 % of the written stories mentioned a cause for climbing in the tree, only 20 % of the spoken stories mentioned a cause, and none of the aphasic subjects' stories contained any mention of a cause for climbing. This indicated that spoken narratives, and narratives produced by the aphasic subjects even to a greater extent, were restricted to the mention of the most important events depicted in the picture series. These events could be seen as the cornerstones of the script, the causes and consequences of which can be inferred on the basis of the script. Thus, the spoken stories were very efficient in transmitting the core content of the picture series. The longer written narratives were more descriptive in nature, and many of them obviously seeked a belletristic style, thus being short stories rather than pieces of expository prose. An example of a similar pair of spoken and written narratives is discussed in detail by Tannen (1982). Writing is characteristically more decontextualized than speech, and maximal background and connective tissue is made explicit in writing while in speech more details are left for the listener to infer.

The spoken stories made use of a few common verbs as compared to the more varied and semantically more specific verbs of the written narratives. For example, in Finnish it is possible to use the verb *mennä* 'to go' in different contexts (it was one of the most common verbs in spoken stories and in the aphasic subjects' stories). We can say:

(1) mies menee puuhun	the man goes up the tree (i.e. climbs up the tree)	[the climbing process]
(2) oksa menee poikki	the branch goes in two (pieces) (i.e. breaks)	[the cause for falling]
(3) mies menee maahan	the man goes to the ground (i.e. falls)	[the falling process]

These instances of the verb *mennä* 'to go' exemplify extreme simplicity. Instead of *mennä* in example 1, people often used the verb *kiivetä* 'to climb' in both spoken and written narratives. In example 2, the most typical verb in spoken narratives was *katkeaa* 'breaks', whereas written narratives often used more specific or descriptive means of expression, such as *murtuu* 'breaks under a heavy load, fractures', *napsahtaa poikki* 'breaks with a snap', or *katkeaa rusahtaen* 'breaks crackling, with a crack'. The last example (3) only occurred once in aphasic speech. A more common way of conveying the same information was to use the verb *tulla* 'to come' in the spoken stories, but the most common verb was still somewhat more specific *pudota* 'to fall' which was common in both the spoken and written narratives. In the written narratives, even more descriptive expressions were used, such as *pudota tömpsähtää* 'to fall with a thump', *roahtaa* 'fall flop', or *mätkähtää* 'to thump, flop down'. Thus, in addition to being more specific, written expressions were often more descriptive too.

The written narratives contained more dense, exact, and descriptive ways of presenting information. The written stories made use of infinitival and participial constructions when presenting motivations for actions taking place, their consequences, and comments concerning the feelings of the participants. The written narratives also made use of features of involvement through a sense of identification with the characters of the text (see also Tannen 1982 and

BEST COP

examples below). The descriptive information, attached to the core, rendered the written stories longer than the spoken stories.

The above-mentioned factors account for many differences between the spoken and written narratives. They do not, however, tell why there were fewer examples of the verb *kuolla* 'to die' in the written narratives as compared to the spoken ones. Instead of using a finite verb as in *linnunpojat kuolivat* 'the nestlings died', the subject might prefer a participial construction such as *lintuemo itkee [kuolleita] poikasiaan* 'the mother bird is weeping for its [dead] nestlings'. Thus, the dying of the nestlings can be conveyed by a participial, or it can be only inexplicitly implied. The inexplicitness may be related to the depth of processing the visual stimulus. The lack of in-depth processing of the picture's content, or a strategy of only verbalizing the directly visible facts (it is difficult to visualize death as opposed to being badly hurt) may explain why the eldest subjects and the aphasics seldom mentioned the death of the nestlings explicitly. Alternatively, it may be a voluntary choice due to, for example, an avoidance of explicit mention of tabu such as death.

Further observations about the structure of the stories

The six pictures of the picture series provided the subjects with a way of splitting the chain of events into six parts. The simplest way of describing the picture series was to produce one sentence for each picture. This strategy was followed by many speakers. The writers, however, often integrated information from two pictures into one sentence, and in the written stories there was more variation in the order in which the events were presented. Sometimes one event was taken as a cause or as a consequence of another event, and the cause or consequence relationships were explicitly verbalized.

The densest possible way of presenting the chain of events is to integrate the whole story into one sentence or utterance. This requires a change in the point of view. Normally, the

PY AVAILABLE

stories follow the order of the pictures and the temporal sequence of events. However, it is also possible to take the final scene as the starting point. The narrator is then as if standing by the victim's sickbed, and the sequence of events is seen as a cause leading to the final scene. In this case, the order of mention is reversed compared to the one which follows the time-course of the events, and also the whole sequence of events can be embedded into one (extremely) complex sentence. The change in the point of view leads to a style typical to legal texts, a style we would hardly expect to find in a task faced by the present subjects. Moreover, none of the subjects departed this much from the order of the pictures.

The speakers often described in the simplest possible way what they saw in the pictures whereas the writers tended to interpret the pictures more thoroughly and verbalized their interpretations. A more thorough interpretation of events also led to greater identification of the writer with the characters in the story, and the written stories contained a lot of motivations for the activities taking place as well as comments concerning the subjects' feelings. Typical beginnings of the spoken and written stories were clear examples of this difference.

spoken stories: a woman points to a bird's nest

written stories: a woman notices a bird's nest
a woman gets excited when she notices ...

The aphasics usually stuck to the stimulus pictures more closely than the non-aphasic subjects. There were also some differences between the age groups; the eldest speakers stuck to the pictures more closely than the younger speakers. These differences probably reflected a stylistic choice, but on-line processing constraints in the production situation could also be considered.

Stylistic differences accounted for the greatest differences between the three sets of stories. The speakers typically produced one utterance for each picture. They selected the verbs from a small set of common words directly verbalizing the depicted events. The writers gave more space to their imagination, identified themselves with the characters of the story, thinking not only of the depicted events but also of their causes and consequences. This led to a more variable choice of finite verbs which were often more specific and descriptive than the verbs used by the speakers. The oral stories strictly followed the time-course of the events whereas in the written stories the information of two neighbouring pictures was often integrated into one sentence, allowing for more variation in the order of presentation. The analysis did not reveal qualitative differences between the aphasic and the non-aphasic subjects. The aphasics' stories were characterized by an overabundance of features typical of spoken stories: the non-fluent aphasics' stories were characterized by a dynamic and reduced style (even "telegraphic speech") whereas the fluent aphasics' stories were characterized by hesitations and grammatical incoherence typical of orally presented descriptive stories that try to attain a more formal style. However, all the aphasics stuck closely to the content of the pictures, not leaving room for their imagination as many non-aphasic subjects (writers, in particular) did.

References

Hakulinen, Auli & Karlsson, Fred & Vilkuna, Maria. 1980. *Suomen tekstilauseiden piirteitä: kvantitatiivinen tutkimus*. Publications of the Department of General Linguistics, University of Helsinki, No. 6. Helsinki.

Kolk, Herman H. J. & Grunsven, Marianne J. F. van & Keyser, Antoine. 1985. On Parallelism between Production and Comprehension in Agrammatism. In Mary-Louise Kean (ed.), *Agrammatism*. pp. 165-206. Orlando: Academic Press.

Kukkonen, Pirkko. 1990. *Patterns of Phonological Disturbances in Adult Aphasia*. Suomalaisen Kirjallisuuden Seuran Toimituksia 259. Helsinki: Finnish Literature Society.

Kukkonen, Pirkko. 1993. On Paragrammatism in Finnish. *Nordic Journal of Linguistics* 16: 123-135.

Kukkonen, Pirkko. 1994. Grammatical Complexity of Aphasic Speech. In R. Aulanko & A.-M. Korpijaakko-Huuhka (eds.), *Proceedings of the Third Congress of the International Clinical Phonetics and Linguistics Association*, 9-11 August 1993, Helsinki. Publications of the Department of Phonetics, University of Helsinki 39: 99-106.

Levelt, Willem J. M. 1989. *Speaking - From Intention to Articulation*. Cambridge, Mass. and London, England: M.I.T. Press.

Paradis, Michel. 1987. *The Assessment of Bilingual Aphasia*. Hillsdale, N.J. & London: Lawrence Erlbaum.

Roitto, Marjo. 1990. Kielellinen suoriutuminen normaalisti ikääntyneillä suomenkielisillä. Unpublished pro gradu thesis, Department of Phonetics, University of Helsinki.

Saukkonen, Pauli. 1984. *Mistä tyyli syntyy*. Porvoo: Werner Söderström.

Saukkonen, Pauli & Haipus, Marjatta & Niemikorpi, Antero & Sulkala, Helena. 1979. *Suomen kielen taajuussanasto. A frequency dictionary of Finnish*. Porvoo: Werner Söderström.

Tannen, Deborah. 1982. Oral and Literate Strategies in Spoken and Written Narratives. *Language* 58: 1-21.